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Tips & techniques for MS-DOS & PC-DOS Versions 5 & 6

If this is Tuesday, run the Belgian program

VERSION 5.0 & 6.x

By Van Wolverton

Despite wall calendars, pocket secretaries, and to-do lists, we still manage to forget appointments, anniversaries, tax deadlines, and other important dates. Calendar programs let you enter all sorts of important dates and schedules, but you may not need to spend the money for them. DOS—with a little bit of help—lets you create simple reminders.

Inside your computer is a battery-operated clock and calendar DOS uses to check the time and date each time you start or restart the system. This feature lets DOS keep track of the time and date a file was created or last changed. DOS doesn't let you do anything with the time and date, however, except display them or change them. One of the programs included with DOS does let you do more with the time and date: QBASIC.EXE runs programs written in the BASIC language.

DOS and BASIC are long-time partners

DOS has given you the capability to write programs in some form of the BASIC language since Version 1. Since Version 5, this program has been called QBASIC to mark its similarity to a more advanced Microsoft product called QuickBasic. In earlier DOS versions, the program was called GWBASIC (IBM versions called it BASICA or simply BASIC).

You don't need to know how to write a BASIC program to use this technique, and this article won't try to show you how. We'll simply show you how to use the DOS COPY command to create a short QBASIC program that runs a program on a specific day. All you need to run a program on a particular date is a two-line QBASIC program that uses these elements:

- **DATE$**—a QBASIC variable that contains the date kept by DOS
- **IF**—a QBASIC statement that compares two values and executes another command if the comparison is true; one of the values it checks can be DATE$
- **SHELL**—a QBASIC command that runs any DOS command (including a program or a batch file) as if you had typed it
- **SYSTEM**—a QBASIC statement that ends the QBASIC program and returns control to DOS

The QBASIC IF statement works much like the DOS IF command we use in batch files. The first part specifies a comparison to be checked to see if it is true; the second part specifies the QBASIC statements to be executed if the comparison is true. The following IF statement, for example, compares the current date (DATE$) to "03-27-1994":

```
if date$ = "03-27-1994" then shell "anniv"
```

If the comparison is true, then QBASIC tells DOS to carry out the command enclosed in quotation marks: SHELL "ANNIV" (notice that the structure of this sentence describing what happens follows the same IF-THEN structure as the QBASIC IF statement). The SHELL statement sends whatever is between the quotation marks to DOS as a command; the effect is the same as if you typed what's between the quotation marks at the DOS command prompt.

Creating a QBASIC program with COPY

QBASIC includes a specialized text editor plus a set of commands and function keys for writing, running,

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and debugging programs. It isn't necessary to use QBASIC to write a program, however, because a program is simply a file that contains the program statements. You can create the program using any text editor that stores straight ASCII text or, for short programs, simply by using the DOS COPY command to copy the console (input entered through the keyboard and echoed to the screen) to a file.

We aren't learning QBASIC here, so we'll use the latter technique because it's quicker. Type the following to create a file named AUTO.BAS:

```
C:\>copy con auto.bas

if date$ = "03-27-1994" then shell "anniv"
system
<F6><[Enter]>
```

This QBASIC program runs the batch file ANNIV.BAT if the date is the same as the one specified in quotation marks. The last line, *<F6><[Enter]>*, means to press the function key labeled <F6>, then [Enter], to end the COPY command. Pressing <F6> will display ^Z in your file.

The example shows the date as March 27, 1994. When you type the *if date$* line, substitute today's date for "03-27-1994", always including a 0 if necessary so that both the day and month are two digits long. If you don't include a zero before a single-digit day or month, the comparison will never be true because QBASIC always includes the leading zero. Notice also that the year contains four digits, not just the last two.

The first line of the program is the IF statement that compares the current date to the date on which the program is to run and, if the dates are the same, runs the program using the SHELL command. The second line is a SYSTEM command that ends QBASIC and returns control to DOS.

A batch file for testing

You can run any program you like using this technique. As a quick test, use the DOS COPY command again, this time to create the batch file below, named ANNIV.BAT. This batch file displays an important message, so we add a beep to it to draw attention. ^G makes the system beep. You create the ^G at the end of the fourth line by pressing [Ctrl]G.

```
C:\>copy con anniv.bat

@echo off
echo.
echo ANNIVERSARY IS ONE WEEK AWAY.
echo GET PRESENT SOON! ^G
echo.
<F6><[Enter]>
```


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Now, run the QBASIC program to see if it will run ANNIV.BAT. The command to run QBASIC is simply QBASIC. You must add the /RUN parameter, which tells QBASIC not to start its editor, but to run the program whose name follows /RUN, then return control to DOS. QBASIC assumes the file extension of the program is BAS, so you must type only the filename (AUTO):

```
qbasic /run auto
```

NOTE: In Version 4 or an earlier version of DOS, the name of the BASIC language interpreter is different. It's GWBASIC if you're using MS-DOS from Microsoft and BASICA if you're using PC-DOS from IBM. Replace the QBASIC command in the example with GWBASIC AUTO if you're using MS-DOS or BASICA AUTO if you're using PC-DOS (you don't need the /RUN parameter with either GWBASIC or BASICA).

If you specified today's date in the IF statement, AUTO.BAS should run the batch file ANNIV.BAT, which beeps and displays the cautionary message about an upcoming anniversary.

If the program fails to perform as it should, use the TYPE command to compare the contents of AUTO.BAS and ANNIV.BAT with the earlier instructions. Pay particular attention to the date specified in the IF statement in AUTO.BAS: The day and month must be two digits long, using a 0 before a single-digit day or month number. If you find any errors, either edit the files with the DOS Editor or use the COPY command again as described in the earlier instructions. Make sure that the date specified in the IF statement matches the date you see when you type the DATE command.

If ANNIV.BAT does run as it should, test again to make sure that ANNIV.BAT doesn't run on a different date. Type the following to change the date to January 1, 1999, and test the program again:

```
C:\>date 1/1/99
C:\>qbasic /run auto
```

The message shouldn't display this time because AUTO.BAS shouldn't run ANNIV.BAT with the faulty date. If the message is displayed, check the contents of AUTO.BAS and ANNIV.BAT against the instructions again and correct any differences.

When the program is working properly, use the DATE command to restore today's date. To safeguard yourself against forgetting your anniversary, change the date in AUTO.BAS to your anniversary and put the QBASIC /RUN AUTO command in AUTOEXEC.BAT.

Running your own programs

To run any program on any date, substitute the date on which you want to run the program for "03-27-1994" in the IF statement of the QBASIC program, and substitute the command that runs the program for ANNIV. Remember to include a 0 before the month or day if it's a single-digit number and to use all four digits of the year. Put the QBASIC command in AUTOEXEC.BAT.

If you want to run several programs on different days (or on the same day), just put an additional IF statement in AUTO.BAS for each program you want to run, specifying the date and command that runs the program. The following QBASIC program, for example, would run a program named ANNIV on March 27, 1994, and programs named ACCOUNT and DIALUP on May 5, 1994:

```
if date$ = "03-27-1994" then shell "anniv"
if date$ = "05-05-1994" then shell "account"
if date$ = "05-05-1994" then shell "dialup"
system
```

Put these commands in AUTOEXEC.BAT and they'll run the specified programs each time you start or restart your system on the specified dates. This method isn't as handy as the automatic program execution capabilities some programs offer, but you don't have to buy another program to get this capability. You're letting DOS do it for you.

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WORKING SMARTER

VERSION 5.0 & 6.x

Setting default switches for the DIR command

The DOS DIR command lets you display directory information in many different ways. You can sort your files and subdirectories by various criteria, and you can select the format and type of information to display. Unfortunately, you must use a complex series of command switches to tell DOS how to execute the DIR command.

If you usually use the same switches when you execute the DIR command, you can save yourself a lot of keystrokes by setting the DIRCMD environment variable. In this article, we'll show you how to use DIRCMD in your AUTOEXEC.BAT to create a set of default switches for the DIR command. Then we'll override those default switches at the command line.

How DIRCMD works

DIRCMD is a DOS environment variable that controls the operation of the DIR command. Environment variables are containers that store information during the current DOS session. Consequently, when you use the DIRCMD variable to assign switches to the DIR command, those switches remain in effect until you reboot your computer.

You establish the DIRCMD variable's value by issuing the SET command. You use the syntax

```
set dircmd=/switch
```

After you set DIRCMD, the DIR command will execute those switches each time you type

```
dir
```

from the command prompt.

Since environment variables exist only during a single DOS session, you must reset the DIRCMD environment variable every time you reboot your computer. To do so, you simply set DIRCMD's value in your AUTOEXEC.BAT file. By doing so, you reestablish the default switches every time you boot your computer. Now, let's modify the AUTOEXEC.BAT file to take advantage of DIRCMD.

Changing AUTOEXEC.BAT

For our example, we'll establish default switches that automatically sort our directory listings alphabetically and pause when a listing occupies more than one screen. Since the AUTOEXEC.BAT file normally exists in the root directory, type

```
C:\>edit c:\autoexec.bat
```

to open the AUTOEXEC.BAT file in the DOS Editor.

Now, type

```
set dircmd=/o /p
```

on its own line of the AUTOEXEC.BAT file. Save the file and close the Editor. Now, you just need to reboot your computer to change the default DIR settings.

Testing the new settings

Before we reboot our computer, let's observe the DIR command's current behavior. To do so, simply type

```
C:\>dir
```

and press [Enter]. As Figure A shows, DOS displays the directory listing of our root directory. Since we haven't taken the time to clean out our root directory recently, the directory requires more than one screen. The files appear in the order in which we added them to the directory.

To establish the default DIR switches, hold down the [Ctrl], [Alt], and [Del] keys to reboot your computer. When the AUTOEXEC.BAT file executes, it processes the SET DIRCMD command. To demonstrate the default switches, again type

```
C:\>dir
```

Don't fall asleep at the switch

With each successive version of DOS, the DIR command has gained more switches. You can now customize the DIR command to present your directory listings in an almost limitless number of combinations. To help you keep track of the DIR command's switches, we put together this quick reference table.

DIR command switches

General switches

/B	Bare format (No heading or summary)
/L	Filenames in lowercase
/S	Displays files in all included subdirectories
/P	Pauses after each screen
/W	Displays in wide format

Sort switches

/O	Sorts by name, directories first
/ON	Sorts by name, directories intermixed
/O-N	Reverse sorts by name, directories intermixed
/OE	Sorts by extension
/O-E	Reverse sorts by extension
/OS	Sorts by size, smallest first
/O-S	Sorts by size, largest first
/OD	Sorts by date, oldest first
/O-D	Sorts by date, newest first
/OG	Default order, directories first
/O-G	Default order, files before directories

Attribute switches

/AD	Subdirectories only
/AH	Hidden files only
/AS	System files only
/AR	Read-only files only
/AA	Archive files only

from the command prompt. As Figure B shows, this time our computer lists the files in alphabetical order, directories first. It also pauses at the bottom of the first screen of entries.

As you can see, the DIRCMD environment variable can make the DIR command more useful. Now, let's look at how you can control the DIR command after you've established the default switches.

Figure A

```
 Volume in drive C is DOS 5
 Volume Serial Number is 1A9D-81D8
 Directory of C:\

BCOPY    BAT      1564 10-26-93   7:05p
DOS          <DIR>      04-29-93   4:04p
COLLWIN      <DIR>      08-06-93  11:37a
WINA20   386      9349 04-09-91   5:00a
SYS          <DIR>      11-01-93   3:02p
CONFIG   SYS       218 01-09-94   9:24a
WINDOWS      <DIR>      04-29-93   4:29p
TSR      BAT        70 01-04-94   3:24a
TSR1     BAT       144 01-04-94   3:20a
TXT          <DIR>      11-01-93   8:55p
FIGS         <DIR>      04-30-93   2:23p
GMKW         <DIR>      09-13-93   4:42a
PSFONTS      <DIR>      09-13-93   4:42a
WPC          <DIR>      09-13-93   4:43a
SIZE     BAT        98 01-05-94   6:25a
MOUSE        <DIR>      05-18-93   9:52a
BATCH        <DIR>      05-27-93  10:08a
MIRROR   BAK     90112 06-18-93  11:08a
MIRROR   FIL     90112 06-18-93   3:10p
WPWIN        <DIR>      09-13-93   4:44a
COLLDOS      <DIR>      08-06-93  12:25p
PKUNZIP      <DIR>      09-24-93   1:48a
BUTTONS      <DIR>      09-27-93   1:45a
AUTOEXEC BAT      240 01-04-94   3:21a
       24 file(s)     191907 bytes
                    35917824 bytes free

C:\>
```

This directory listing appears in the order the files are stored on disk and requires more than one screen.

Figure B

```
 Volume in drive C is DOS 5
 Volume Serial Number is 1A9D-81D8
 Directory of C:\

BATCH        <DIR>      05-27-93  10:08a
BUTTONS      <DIR>      09-27-93   1:45a
COLLDOS      <DIR>      08-06-93  12:25p
COLLWIN      <DIR>      08-06-93  11:37a
DOS          <DIR>      04-29-93   4:04p
FIGS         <DIR>      04-30-93   2:23p
GMKW         <DIR>      09-13-93   4:42a
MOUSE        <DIR>      05-18-93   9:52a
PKUNZIP      <DIR>      09-24-93   1:48a
PSFONTS      <DIR>      09-13-93   4:42a
SYS          <DIR>      11-01-93   3:02p
TXT          <DIR>      11-01-93   8:55p
WINDOWS      <DIR>      04-29-93   4:29p
WPC          <DIR>      09-13-93   4:43a
WPWIN        <DIR>      09-13-93   4:44a
AUTOEXEC BAT      240 01-04-94   3:21a
BCOPY    BAT      1564 10-26-93   7:05p
CONFIG   SYS       218 01-09-94   9:24a
MIRROR   BAK     90112 06-18-93  11:08a
Press any key to continue . . .

 (continuing C:\)
MIRROR   FIL     90112 06-18-93   3:10p
SIZE     BAT        98 01-05-94   6:25a
TSR      BAT        70 01-04-94   3:24a
TSR1     BAT       144 01-04-94   3:20a
WINA20   386      9349 04-09-91   5:00a
       24 file(s)     191907 bytes
                    35919872 bytes free

C:\>
```

After you set the DIRCMD environment variable, the DIR command uses the switches you established.

Overriding DIRCMD

Even if you use DIRCMD to establish default switches for the DIR command, you may still occasionally need to attach other switches to the DIR command. For example, you may want to display the file information in the wide format by attaching the /W switch to the DIR command. You may also need to cancel one of the default switches you established with DIRCMD. Fortunately, it's easy to modify the DIR command, even if you've established new settings with DIRCMD.

If you attach another switch, such as /W, to the DIR command, DIR executes as if you'd entered that switch along with all the switches you established with DIRCMD.

For example, we set up the /O and /P switches in the DIRCMD environment variable. If we issue the command

```
C:\WINDOWS>dir /w
```

in our WINDOWS subdirectory, DOS displays the directory listing shown in Figure C. As you can see, the listing appears in alphabetical order and pauses after a screenful of entries. However, it also acknowledges the /W switch and displays the listing in wide format.

To cancel a default switch's effect, you simply attach that switch to the DIR command, but you place a minus sign (-) in front of the switch. For example, to cancel the /P switch that you saved in DIRCMD, you type

```
C:\WINDOWS>dir /-p
```

and press [Enter]. Figure D on page 6 shows the beginning and the end of the directory DOS displays. This time the listing appears in alphabetical order, but it doesn't pause at the end of each screen of entries.

Figure C

```
 Volume in drive C is DOS 5
 Volume Serial Number is 1A9D-81D8
 Directory of C:\WINDOWS

[.]             [..]            [SYSTEM]        256COLOR.BMP    ACCESSOR.GRP
APPLICAT.GRP    APPS.HLP        ARCADE.BMP      ARCHES.BMP      ARGYLE.BMP
ATM.INI         ATMCNTRL.EXE    BOOTLOG.TXT     CALC.EXE        CALC.HLP
CALENDAR.EXE    CALENDAR.HLP    CANYON.MID      CARDFILE.EXE    CARDFILE.HLP
CARS.BMP        CASTLE.BMP      CHARMAP.EXE     CHARMAP.HLP     CHIMES.WAV
CHITZ.BMP       CHORD.WAV       CLIPBRD.EXE     CLIPBRD.HLP     CLOCK.EXE
CLOCK.INI       COLLAGE.INI     COLLAGEC.GRP    CONTROL.EXE     CONTROL.HLP
CONTROL.INI     DING.WAV        DOSAPP.INI      DOSPRMPT.PIF    DRWATSON.EXE
EDIT.PIF        EGYPT.BMP       EMM386.EXE      EXPAND.EXE      FLOCK.BMP
GAMES.GRP       GLOSSARY.HLP    GRAMMATI.GRP    HIMEM.SYS       HONEY.BMP
HPPCL.X02       LEAVES.BMP      MAIN.GRP        MARBLE.BMP      MORICONS.DLL
MOUSE.INI       MPLAYER.EXE     MPLAYER.HLP     MSD.EXE         MSD.INI
NETWORKS.WRI    NOTEPAD.EXE     NOTEPAD.HLP     PACKAGER.EXE    PACKAGER.HLP
PBRUSH.DLL      PBRUSH.EXE      PBRUSH.HLP      PIFEDIT.EXE     PIFEDIT.HLP
PRINTERS.WRI    PRINTMAN.EXE    PRINTMAN.HLP    PROGMAN.EXE     PROGMAN.HLP
PROGMAN.INI     QBASIC.PIF      RAMDRIVE.SYS    README.WRI      RECORDER.DLL
RECORDER.EXE    RECORDER.HLP    REDBRICK.BMP    REG.DAT         REGEDIT.EXE
REGEDIT.HLP     REGEDITV.HLP    RIVETS.BMP      SCRNSAVE.SCR    SETUP.EXE
SETUP.HLP       SETUP.TXT       SMARTDRV.EXE    SMQUOTE.INI     SOL.EXE
Press any key to continue . . .

 (continuing C:\WINDOWS)
SOL.HLP         SOUNDREC.EXE    SOUNDREC.HLP    SQUARES.BMP     SSFLYWIN.SCR
SSMARQUE.SCR    SSMYST.SCR      SSPCWEEK.SCR    SSSTARS.SCR     STANDARD.WPT
STARTUP.GRP     SYSINI.WRI      SYSTEM.BAK      SYSTEM.INI      TADA.WAV
TARTAN.BMP      TASKMAN.EXE     TERMINAL.EXE    TERMINAL.HLP    THATCH.BMP
WIN.BAK         WIN.COM         WIN.INI         WIN.OLD         WINFILE.EXE
WINFILE.HLP     WINFILE.INI     WINHELP.EXE     WINHELP.HLP     WININI.WRI
WINLOGO.BMP     WINMINE.EXE     WINMINE.HLP     WINMINE.INI     WINTUTOR.DAT
WINTUTOR.EXE    WINVER.EXE      WORDPERF.GRP    WPC.INI         WPCSET.BIF
WPFM.INI        WPKICK.INI      WPSP.INI        WPTH.INI        WPWIN.REG
WPWP.INI        WP{WP}US.SUP    WP}00001.TMP    WRITE.EXE       WRITE.HLP
WTAPI.INI       ZIGZAG.BMP      _DEFAULT.PIF    ~MF3068.TMP     ~WP2318.TMP
      150 file(s)     5008152 bytes
                     35919872 bytes free

C:\WINDOWS>
```

If you attach another switch, such as /W, to the DIR command, DOS executes that switch plus the other switches established in DIRCMD.

Figure D

```
 Volume in drive C is DOS 5
 Volume Serial Number is 1A9D-81D8
 Directory of C:\WINDOWS

.            <DIR>      04-29-93   4:29p
..           <DIR>      04-29-93   4:29p
SYSTEM       <DIR>      04-29-93   4:29p
256COLOR BMP       5078 03-10-92   3:10a
ACCESSOR GRP       9447 01-13-94   7:02a
APPLICAT GRP       2252 01-13-94   7:02a
APPS     HLP      15694 03-10-92   3:10a
ARCADE   BMP        630 03-10-92   3:10a
ARCHES   BMP      10358 03-10-92   3:10a
ARGYLE   BMP        630 03-10-92   3:10a
ATM      INI       1099 05-03-93  10:46a
ATMCNTRL EXE     115904 10-28-92   2:50a
BOOTLOG  TXT       1181 04-29-93   4:32p

WPWP     INI       2896 01-09-94   9:15a
WP{WP}US SUP        330 09-13-93   1:40a
WP}00001 TMP          0 09-09-93  10:56p
WRITE    EXE     244976 03-10-92   3:10a
WRITE    HLP      36971 03-10-92   3:10a
WTAPI    INI        888 09-07-93  11:42p
ZIGZAG   BMP        630 03-10-92   3:10a
_DEFAULT PIF        545 04-29-93   4:39p
~MF3060  TMP         18 08-31-93  10:57p
~WP2318  TMP          0 09-09-93  10:56p
      150 file(s)    5008152 bytes
                    35911680 bytes free

C:\WINDOWS>
```

If you attach the switch /-P to the DIR command, you cancel the /P switch stored in DIRCMD.

Finally, if you want to issue a switch that conflicts with a switch you established with DIRCMD, simply attach that switch to the DIR command. For example, if you want to use the /OE switch to sort your files by extension instead of accepting the /O switch you established with DIRCMD, simply type

```
C:\WINDOWS>dir /oe
```

and press [Enter]. As Figure E shows, DOS lists the files in alphabetical order by extension. However, even though the /OE switch overrides the /O switch, DIR still recognizes the /P switch you stored in DIRCMD.

Figure E

```
 Volume in drive C is DOS 5
 Volume Serial Number is 1A9D-81D8
 Directory of C:\WINDOWS

.            <DIR>      04-29-93   4:29p
..           <DIR>      04-29-93   4:29p
SYSTEM       <DIR>      04-29-93   4:29p
SYSTEM   BAK       1595 04-29-93   4:44p
WIN      BAK       3467 05-03-93  10:43a
WPCSET   BIF      20065 09-13-93   4:15a
ARGYLE   BMP        630 03-10-92   3:10a
CARS     BMP        630 03-10-92   3:10a
FLOCK    BMP       1630 04-30-93   9:12a
REDBRICK BMP        630 03-10-92   3:10a
ZIGZAG   BMP        630 03-10-92   3:10a
256COLOR BMP       5078 03-10-92   3:10a
ARCHES   BMP      10358 03-10-92   3:10a
HONEY    BMP        854 03-10-92   3:10a
MARBLE   BMP      27646 03-10-92   3:10a
RIVETS   BMP        630 03-10-92   3:10a
TARTAN   BMP      32886 03-10-92   3:10a
THATCH   BMP        598 03-10-92   3:10a
WINLOGO  BMP      38518 03-10-92   3:10a
Press any key to continue . . .

(continuing C:\WINDOWS)
PRINTERS WRI      44928 03-10-92   3:10a
README   WRI      99584 03-10-92   3:10a
SYSINI   WRI      53760 03-10-92   3:10a
WININI   WRI      31104 03-10-92   3:10a
HPPCL    X02        659 01-09-94   9:15a
      150 file(s)    5008152 bytes
                    35919872 bytes free

C:\WINDOWS>
```

If you attach a switch that conflicts with a switch you established using DIRCMD, DOS recognizes the switch you enter at the command line.

Learning the switches

The DIR command offers a number of useful switches. For a handy reference table to the DIR switches, see "Don't Fall Asleep at the Switch" on page 4.

Conclusion

If you prefer to display your directory listings in a format other than the DOS default, you probably use some of DIR's switches. You can establish default switches for DIR by setting the DIRCMD environment variable in your AUTOEXEC.BAT file. In this article, we showed you how to set default DIR switches with DIRCMD.

Safeguarding batch files when you set DIRCMD

VERSION 5.0 & 6.x

When you redefine your DIR command by using the SET DIRCMD directive, the new definition of DIR resides in memory unless you change it. If you set DIRCMD at the DOS prompt, you can disable it by rebooting your computer or by turning it off on the command line. If the directive is in your AUTOEXEC.BAT or CONFIG.SYS file, you must remove it, or you can disable it at the DOS prompt. You can turn off DIRCMD's definition at the DOS prompt by issuing the command

```
SET DIRCMD=
```

When you redefine your DIR command using the DIRCMD environment variable, you must remember that the new definition of DIR overrides the default DIR command in your batch files, too. You may discover that your batch file seemingly takes forever to finish its task; or, your batch file might crash altogether and not let you know.

You can restore the default definition of DIR by adding four commands to any batch file that contains a DIR command. The first command temporarily stores your DIRCMD definition in a variable. (Of course, you can use any name for storing your temporary DIRCMD definition.) The second restores the DIR command to its default definition. Add to your batch file the following two lines before the line that runs the DIR command:

```
SET TMPDIR=%DIRCMD%
SET DIRCMD=
```

The third command restores your DIRCMD definition, and the fourth erases your temporary variable. Add these lines after the line that runs the DIR command and before the end of the batch file:

```
SET DIRCMD=%TMPDIR%
SET TMPDIR=
```

VERSION 5.0 & 6.x

Finding the size of your directories

Do you ever need to know how many files are in a directory or how much space those files consume? For example, you might want to use XCOPY to copy a group of files to a floppy disk but fit the files on as few disks as possible.

DOS provides a couple of ways to find the information you need. You can view the last lines of the output of a DIR command, or you can find the information you need by using the DOS Shell. If you want information on one or two directories, either of these methods might be okay. However, if you want information about several directories, repeating the steps in either method gets old in a hurry.

Instead, you need a way to get the information you want with a single command. This article will provide you with two methods you can use. First, we'll show you a batch file you can use to find the total size and number of files in any directory and its subdirectories on any drive. Then we'll show you a Doskey macro that will give you the same information but doesn't trap for errors.

An overview

Both the batch file and the macro use multiple FIND commands as well as information that's readily available to you through the DIR/S command. You use the /S switch to list all the files in a specified directory, including the files that occupy subdirectories. For example, running a DIR/S command on our C:\GU directory produced the listing shown in Figure A.

Figure A

```
 Volume in drive C is HOST_FOR_C
 Volume Serial Number is 16D9-1668

Directory of C:\GU

.            <DIR>          01-13-94   6:21a
..           <DIR>          01-13-94   6:21a
COLLAGE      <DIR>          01-13-94   6:22a
TEMP         <DIR>          01-13-94   6:22a
GUFILE               1,106 01-13-94   6:26a
       5 file(s)              1,106 bytes

Directory of C:\GU\COLLAGE

.            <DIR>          01-13-94   6:22a
..           <DIR>          01-13-94   6:22a
SHOW     EXE        34,317 06-19-91   9:52a
SNAP     EXE        42,416 10-29-91   4:35p
SAVE     EXE        27,060 10-29-91   4:37p
VIEW     EXE        35,018 10-29-91   4:38p
S        EXE         6,070 06-08-91   8:46p
       7 file(s)          144,881 bytes

Directory of C:\GU\TEMP

.            <DIR>          01-13-94   6:22a
..           <DIR>          01-13-94   6:22a
VLIST-A  TIF       112,190 06-30-93   5:18p
VLIST-B  TIF       112,190 07-01-93  10:47a
       4 file(s)          224,380 bytes

Total files listed:
      16 file(s)          370,367 bytes
                      132,300,800 bytes free

C:\GU>
```

DIR/S shows all the files in the directory and its subdirectories.

As you can see, this listing gives us the answer we're looking for, but it provides more information than we really need. Also, the file count includes the directories, which we don't want. We eliminate the extra information using DIR's /A:-D switch and a group of FIND commands. You can read more about the FIND command in "Powering Up the FIND Command" on page 9.

The key to the technique is using the pipe operator (¦) to stack the commands. The pipe operator sends the output of each part of the command through the command to its right, manipulating and focusing the information as it proceeds. We use the pipe operator to filter out the information we don't want.

Now let's combine the commands we just looked at into a batch file that will determine the amount of disk space consumed by the files in a specified directory and all its subdirectories. Later, we'll show you how the basic technique works as a Doskey macro.

The SIZE batch file

Use Edit or another compatible word processor to enter the batch file shown in Figure B, and save it under the name SIZE.BAT in your batch file directory or another directory listed in your PATH statement. (Note that there is a space character between the quotation marks in the last FIND statement.)

Figure B

```
@echo off
rem   SIZE.BAT displays the size and number of files in a
rem   specified directory and its subdirectories.

if "%1"=="\" goto :COMPILE
if not exist %1\nul goto :ONERROR

:COMPILE
echo Compiling information for %1 directory
dir %1 /s/a:-d¦ find/v "-"¦ find/v "Volume"¦ find/v "bytes free"¦ find " "¦more
goto :END

:ONERROR
cls
echo.
echo === Check your syntax. You must include the
echo === complete path to a valid directory.
echo === Do not include spaces in the path name.
echo.
echo ==Examples==
echo       C:\)size windows          ==Next level
echo       C:\WINDOWS)size \         ==Size of root directory
echo       C:\GAMES)size \windows    ==Same level, different path
echo       C:\TEMP)size b:           ==Different drive
echo.

:END

C:\>
```

SIZE.BAT will show you the number of files in and the size of directories and their subdirectories.

How SIZE.BAT works

Now you're ready to use SIZE.BAT. Before we test the batch file, let's take a look at how it works. Like most batch files, SIZE.BAT begins with @ECHO OFF and

REM statements. Then the batch file determines which subroutine to invoke. The first IF statement

```
if "%1"=="\" goto :COMPILE
```

tests whether you entered a backslash after the SIZE command to specify the root directory. If you entered a backslash, the :COMPILE routine begins. If you didn't enter a backslash, the batch file traps for errors with the second IF statement.

The second IF statement

```
if not exist %1\nul goto :ONERROR
```

checks whether you passed a valid directory as the parameter. This command's syntax is interesting because, as you may know, you can't directly check for the existence of a directory in DOS. In this statement, *nul* acts as a dummy filename. We must use the syntax *%1\nul* to check for the existence of *files* in the specified directory. If the statement finds files in the directory, it means there must be a directory.

If the second IF statement doesn't find the directory you specified, the batch file displays the message in the :ONERROR routine and then ends. If the IF statement finds the directory you specified, the :COMPILE routine begins. If you have lots of directories or files in your directory, it might take DOS several seconds to compile the information.

The second line of the :COMPILE routine is the heart of the batch file. The first part, *dir %1 /s*, generates a list of files in the specified directory and all its subdirectories. Next, the */a:-d* switch removes all the subdirectories from the display, including the . and .. directories. If this command finds a directory that contains only subdirectories—no actual files—it removes that directory from the display. It also removes the subdirectories from the file count, leaving you with an accurate count of the files in the directory.

Next, the *find /v "-"* statement searches for the hyphen character and displays any line that doesn't contain a hyphen. This command eliminates the filenames, since each line that lists a filename also lists the file's date, which includes hyphens. Note, however, that this command also eliminates any directory whose name includes a hyphen.

The next three FIND commands are optional and fine-tune the display. The *find /v "Volume"* command eliminates the line at the beginning of the display that contains the disk label. The command *find /v "bytes free"* takes away the last line of the directory display containing the amount of remaining free space. The *find " "* command winnows out the blank lines by searching for and displaying lines that contain a space character.

Finally, *more* creates a temporary file of the information and displays that information one screenful at a time. Now that we know how the batch file works, let's use it.

Using SIZE.BAT

Using SIZE.BAT is easy. You simply enter the command

```
size
```

followed by the name of the directory, drive, or directory on a drive you want information about. If the directory you want to check isn't on your current path, you'll need to provide the appropriate path.

Let's return to our earlier example. To see a listing for the C:\GU directory from the root directory of drive C, just enter the command

```
C:\>size gu
```

Figure C shows the SIZE.BAT listing.

Figure C

```
C:\>size gu
Compiling information for gu directory

Directory of C:\GU\COLLAGE
       5 file(s)        144,881 bytes
Directory of C:\GU\TEMP
       2 file(s)        224,380 bytes
Total files listed:
       7 file(s)        369,261 bytes
C:\>
```

SIZE.BAT summarizes the file and size information for the directory you specified and for the directories down that path.

You'll notice that the parent directory, C:\GU, does not appear in the listing. As we mentioned, SIZE.BAT won't list any directory that doesn't contain actual files. Since C:\GU contains only directories, it doesn't appear in the listing.

You can generate the listing in Figure C from the C:\GU\TEMP directory. Simply enter the command

```
C:\GU\TEMP>size \gu
```

From drive B, use the command

```
B:\>size c:\gu
```

to see the listing. From inside a directory on a disk in the B drive, we change to the B:\BACKOFF directory and enter the command

```
B:\BACKOFF>size c:\gu
```

You can create a shorter version of the batch file as a Doskey macro. (We'll discuss the pros and cons of using a batch file or a macro in a future article.) Our

macro will list the same information as the batch file but won't verify that you passed it a valid directory as a parameter. Although it doesn't give you the safety net the batch file does, it may be all you need. Let's create the DSIZE Doskey macro now.

The DSIZE Doskey macro

We'll call our macro DSIZE to distinguish it from our batch file. We'll create the macro in the AUTOEXEC.BAT file so it will load into memory each time we boot up.

The command we'll use in our DSIZE macro is essentially the same as the *dir* statement we use in the COMPILE routine in SIZE.BAT. The only differences are the addition of the DOSKEY command and the usage of the macro equivalents of batch file symbols for operators and parameters.

Using Edit or another compatible word processor, open your AUTOEXEC.BAT file and add the following line anywhere in the file:

```
doskey dsize=dir $1 /s /a:-d $b find /v "-" $b find /v
   "Volume" $b find /v "bytes free" $b find " " $b more
```

The entire command takes 107 spaces on a single line, well within the 127-character limit DOS imposes on macros and other commands entered from the command line. (Note the space between the quotation marks in the last FIND command.) Now save your AUTOEXEC.BAT file and press [Ctrl][Alt][Del] to reboot your computer.

After your computer reboots, you can easily use the DSIZE macro by entering the command followed by

Powering up the FIND command

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You can use the FIND command not only to search for text strings in files, but also to pinpoint information that can help you manage files and configure your system. By using FIND's switches, you have even more power at your fingertips. Let's see how you can get more out of FIND and its switches.

You use FIND to search a file for a text string you specify. For example, you can display the line in your CONFIG.SYS file that contains the ANSI.SYS driver by entering the command

```
find "ANSI.SYS" config.sys
```

You can also use FIND as a filter when you search input from another command. This command

```
mem /d ¦ find "ANSI"
```

looks in the output of a MEM/DEBUG command and tells you whether your ANSI.SYS file is loaded. (MEM /D tells you the location of each device driver and program currently in memory.)

The default FIND commands are powerful. You can get even more out of FIND by using its switches:

- **/C** tells FIND to **C**ount the occurrences of the text string and display only the number of occurrences.
- **/I** tells FIND to **I**gnore case when it searches, and finds the text string in capital or lowercase letters, or any mix of the two.
- **/N** tells FIND to display the line **N**umber in the original file when it displays the line containing the string.
- **/V** tells FIND to re**V**erse its logic and display only the lines that *don't* contain the specified string. (We use the /V switch extensively in "Finding the Size of Your Directories" on page 7.)

Now let's enhance some FIND commands. In our first example, we typed *ANSI.SYS* in uppercase. The FIND command is case sensitive. This is a good time to use the /I switch just in case you typed *ansi.sys* in lowercase in your CONFIG.SYS file:

```
find /i "ansi.sys" config.sys
```

To find the total number of directories on your system, use the /C switch in the command

```
dir /s ¦ find "<DIR>" /c
```

You can't combine the /C and /N switches. If you do, the /C switch will prevail. However, you can enter

```
find /i /n  "device" config.sys
```

to display the lines and the line numbers of your device drivers, and then you can count how many device drivers you load from the CONFIG.SYS file.

the name of the directory you want to check:

```
dsize directory
```

For example, if you want to check the total space and number of files in the WINDOWS directory, enter this command:

```
C:\>dsize windows
```

When you do, DOS will display the macro followed by its output, as shown in Figure D. You'll notice that when DOS displays the macro, it shows the pipe operators (¦) instead of the *$b* characters you used to represent the pipe operator. As you can see, this macro is a quick and easy alternative to the SIZE.BAT batch file.

Figure D

```
C:\>dsize windows
C:\>dir windows /s /a:-d ¦ find /v "-" ¦ find /v "Volume" ¦ find /v "bytes free"
 ¦ find " " ¦ more

Directory of C:\WINDOWS
     133 file(s)      4,652,132 bytes
Directory of C:\WINDOWS\SYSTEM
     186 file(s)      5,933,378 bytes
Total files listed:
     319 file(s)     10,585,510 bytes

C:\>
```

DOS displays the macro and its output when you invoke the macro.

DOS 6 TIP

VERSION 6.x

Using FASTHELP to view short help messages

One of DOS 6's most impressive command enhancements is the HELP utility. Instead of the bare-bones, single-screen ASCII HELP system in Version 5, now you have a comprehensive, multiscreen utility complete with color, scrolling and searching capabilities, and hypertext access to related topics. You invoke the HELP utility using a command in the form

```
help command
```

If you're trying to learn about DOS or about a specific command, the DOS 6 HELP utility can be a lifesaver. If you already know the basics but just want to review a command's syntax and switches, invoking the full HELP utility seems like overkill. Fortunately, the folks at Microsoft anticipated this need and included the FASTHELP command, which gives you the same kind of information as the DOS 5 HELP system.

You invoke the FASTHELP command by entering

```
fasthelp command
```

where *command* is the name of the command whose HELP you want to view. You can also use the /? switch to invoke FASTHELP in DOS 6, like this:

```
command /?
```

It's that simple.

For example, to view the full HELP for the APPEND command, just enter

```
C:\>help append
```

and you'll see the HELP utility screen shown in Figure A. To see abbreviated HELP for APPEND, enter the command

```
C:\>fasthelp append
```

or

```
C:\>append /?
```

DOS will display the short help shown in Figure B.

Figure A

```
File  Search                    MS-DOS Help: APPEND                    Help
<Notes>  <Examples>

                                  APPEND

Enables programs to open data files in specified directories as if the files
were in the current directory. Do not use this command when Windows is
running.

The specified directories are called appended directories because, for the
sake of opening data files, they can be found as if they were appended to
the current directory.

Syntax

    APPEND [[drive:]path[;...]] [/X[:ON¦:OFF]][/PATH:ON¦/PATH:OFF] [/E]

To display the list of appended directories, use the following syntax:

    APPEND

To cancel the existing list of appended directories, use the following
<Alt+C=Contents> <Alt+N=Next> <Alt+B=Back>                    N 00001:002
```

Use the HELP command to bring up the full HELP utility.

Figure B

```
C:\>append /?
Allows programs to open data files in specified directories as if they were in
the current directory.

APPEND [[drive:]path[;...]] [/X[:ON ¦ :OFF]] [/PATH:ON ¦ /PATH:OFF] [/E]
APPEND ;

  [drive:]path Specifies a drive and directory to append.
  /X:ON        Applies appended directories to file searches and
               application execution.
  /X:OFF       Applies appended directories only to requests to open files.
               /X:OFF is the default setting.
  /PATH:ON     Applies appended directories to file requests that already
               specify a path.  /PATH:ON is the default setting.
  /PATH:OFF    Turns off the effect of /PATH:ON.
  /E           Stores a copy of the appended directory list in an environment
               variable named APPEND.  /E may be used only the first time
               you use APPEND after starting your system.

Type APPEND ; to clear the appended directory list.
Type APPEND without parameters to display the appended directory list.

C:\>
```

Use FASTHELP to view the basic information about a command.

INSIDE DOS™ 1993 Index

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